ABSTRACT OF THE DISCLOSURE

A new high resolution confocal and non-confocal scanning laser macroscope is disclosed which images macroscopic specimens in reflected light, transmitted light, fluorescence, photoluminescence and multi-photon fluorescence. The optical arrangement of a scanning laser macroscope has been altered to include a liquid-immersion laser scan lens, providing higher numerical aperture and higher resolution; and higher intensity at the focal spot, which makes the macroscope particularly well suited for multiphoton imaging. Several applications of the imaging system are described. A liquid-immersion laser scan lens with spring-loaded bottom element and method for containing the immersion liquid are also disclosed.